Executive Summary

The 1996 Clean Water Needs Survey, a joint effort of the States and EPA, was conducted to meet the requirements of Sections 205(a) and 516(b)(1) of the Clean Water Act.

This report presents the results of the U.S. Environmental Protection Agency's (EPA's) 1996 Clean Water Needs Survey (CWNS). It includes EPA's detailed estimates of the capital costs eligible for funding under the State Revolving Fund (SRF) provisions of the 1987 Amendments to the Clean Water Act (CWA). The CWNS covers publicly owned, municipal wastewater collection and treatment facilities, facilities for the control of combined sewer overflows (CSOs), activities designed to control storm water (SW) runoff and nonpoint source (NPS) pollution, and programs designed to protect the nation's estuaries.

The goal of the 1996 CWNS was to provide a broad and valuable source of water quality program information. The primary objective was to update and expand the documented costs for all program categories eligible for SRF funding. Another objective was to improve the estimates for the needs that depend on cost curves and cost models. The national CSO cost model used in the 1992 CWNS was replaced by site-specific cost curves. Also, the 1992 cost model for the NPS management programs to control runoff from agriculture, confined animal facilities, and silviculture was updated with more current data for 1996. In addition, a new national cost model was developed to estimate the Phase I municipal Storm Water (Phase I SW) Program needs. Substantial effort also went into improving the technical information associated with individual facilities and into improving the needs estimates for small communities.

The 1996 CWNS, the twelfth such survey since the CWA was passed in 1972, is a cooperative effort between EPA and the States. The heart of the CWNS is the database that contains technical and cost information on approximately 16,000 publicly owned wastewater treatment facilities. The database also contains cost and technical information for other specific programs and projects that target documented water quality or public health problems. The CWNS does not address private wastewater treatment facilities that are, nevertheless, an integral part of the nation's water quality infrastructure.

The 1996 CWNS does not include needs for Indian tribes on reservations. A separate assessment is conducted and presented to Congress annually by the Indian Health Service for the needs of Indians and Alaska Native Villages.

The total 1996 documented and modeled needs are estimated to be $139.5 billion, to satisfy all program categories eligible for SRF funding for the design year (2016) population. These needs are summarized in Figure 1. The total includes $44.0 billion for wastewater treatment; $10.3 billion for upgrading existing wastewater collection systems; $21.6 billion for new sewer construction; and $44.7 billion for controlling CSOs.

States reported documented needs in the 1996 CWNS for all program areas. However, the total needs shown in Figure 1 include only the modeled estimates, rather than documented needs for those program areas that EPA modeled. Models were used to estimate SW and NPS needs on a State-by-State basis for the entire nation. These are areas in which most

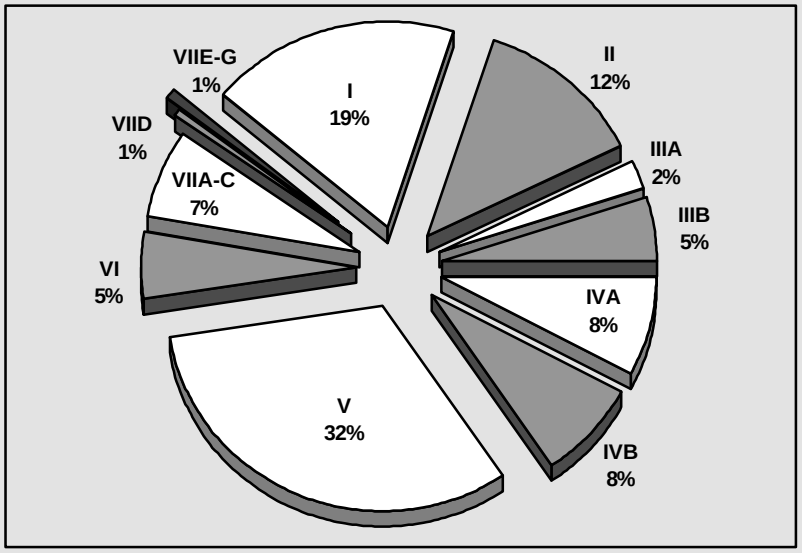
States have little documentation on specific projects. The modeled needs estimates are $7.4 billion for SW and $9.4 billion for NPS projects. The supplemental modeling does not include needs for controlling various other types of water quality problems, such as abandoned mine drainage, septic systems, contaminated sediments, unintended stream modification, and atmospheric deposition.

The water quality program needs for small communities are significant. The total documented needs for communities with populations less than 10,000 are $13.8 billion, representing 11 percent of the total documented needs for the nation. There is a greater requirement in small communities for basic infrastructure when compared to the needs for larger communities. Whereas secondary treatment (Category I) comprises 20 percent of the total documented needs for larger communities, the proportion is 28 percent for small communities. New collector sewers (Category IVA) account for only 6 percent of the total documented need for larger communities but represent 29 percent for small communities. This reflects, in part, the continuing efforts to extend wastewater collection and treatment to small communities.

Nationally, 16,024 wastewater treatment facilities are identified in the 1996 CWNS. These facilities provide service to 190 million people, representing 73 percent of the total population (258 million). Based on State population estimates, when all of the needs are met in 2016, there will be 18,303 publicly owned wastewater treatment facilities serving 275 million people, or 90 percent of the projected population (305 million).

The 1996 CWNS results show a continuing trend toward higher levels of wastewater treatment. In 1988,

FIGURE 1
NEEDS FOR PUBLICLY OWNED WASTEWATER TREATMENT FACILITIES AND OTHER ELIGIBILITIES
(January 1996 Dollars in Billions)



NEEDS CATEGORY			TOTAL NEEDS
TITLE II ELIGIBLE PROJECTS			
I	Secondary Treatment		26.5
II	Advanced Treatment		17.5
IIIA	Infiltration/Inflow Correction		3.3
IIIB	Sewer Replacement/Rehabilitation		7.0
IVA	New Collector Sewers		10.8
IVB	New Interceptor Sewers		10.8
V	Combined Sewer Overflows		44.7
VI	Storm Water *		7.4
TOTAL CATEGORIES I-VI			128.0
OTHER ELIGIBLE PROJECTS (Sections 319 and 320)			
VIIA-C	Nonpoint Source (agriculture and silviculture only)	*	9.4
VIID	Urban Runoff		1.0
VIIE-G	Ground Water, Estuaries, Wetlands		1.1
TOTAL CATEGORY VII			11.5
GRAND TOTAL			139.5

*Modeled needs only. Estimated Category VI needs documented by the States are $3.2 Billion. Estimated Category VIIA-C needs documented by the States are $0.5 Billion.

Costs for operation and maintenance are not eligible for SRF funding and therefore are not included.

1,789 (11 percent) of the 15,591 operational facilities were providing less than secondary treatment. This declined to 868 (6 percent) in 1992 and to 176 (1 percent) in 1996. At the same time, there has been a steady increase in the proportion of facilities providing greater than secondary treatment. In 1988, 22 percent of the 15,591 facilities provided greater than secondary treatment. This grew to 24 percent in 1992. In 1996, 28 percent (4,428 out of 16,024) of the operational treatment facilities are providing greater than secondary treatment.

Sanitary sewer overflows (SSOs) are releases of raw sewage from a sanitary sewer collection system before the headworks of a wastewater treatment plant. The most immediate health risks associated with SSOs are bacteria, viruses, and other pathogens. Accordingly, SSO problems have much in common with the needs addressed by the CWNS.

SSO problems can be found throughout the United States. Although SSO needs are not identified separately in the CWNS, some associated costs to address SSO problems are included in Categories I, III, and IV. In general, EPA believes that the needs estimates in these categories related to SSOs underestimate the total costs associated with preventing SSOs. Therefore, the scale of the SSO problem is currently being addressed by EPA separately from the CWNS. EPA is developing cost estimates for addressing SSOs on a national basis to support the work of the SSO Federal Advisory Committee and other Agency work.

Historically, the needs in the CWNS have been presented on a State-by-State basis. In part this reflects the responsibility that the States have in achieving water quality standards and other CWA goals. Recently, however, substantial emphasis has been placed on using the watershed approach to address the water quality goals of the CWA more holistically. Rather than managing sources of pollution within political boundaries or from a single type of discharge, the watershed provides a more comprehensive view for both analysis and efficient use of resources. EPA has issued several guidance documents discussing how a watershed approach helps attain CWA goals. The watershed approach offers the prospect of more efficiently managing the available resources within a watershed by optimizing investment in water quality improvement and improving communication and coordination.

The 1996 CWNS information is presented on a State-by-State basis. However, the implications of organizing the same data on a watershed basis are also explored. Later in this report, three case studies are presented that illustrate the nature of organizing needs information by watershed. The 1996 CWNS foreshadows the direction in which EPA believes water quality management will progress. While States continue to have primary responsibility for achieving CWA goals, these goals may be best pursued on a watershed basis.

While the CWNS is neither designed nor intended to be used as a vehicle for determining funding priority under the SRF program, priority setting is an important part of all EPA programs and is key to the success of addressing problems on a watershed basis. Although EPA encourages States to give priority to projects that are necessary to ensure compliance with the requirements of the CWA, States may fund any project on their State priority list, regardless of its position on the list. Over the past two years, EPA has been working with their State counterparts in the Clean Water SRF program to outline options for enhanced planning and priority systems that would include nonpoint source and estuary projects along with more traditional wastewater treatment projects. The objective of this and other ongoing efforts is to target SRF resources better to solve high priority problems in the nation's watersheds.